

REMARKS

The above Amendments and these Remarks are in reply to the Office Action mailed December 30, 2003.

With the cancellation of Claims 54, 62 and 71, Claims 49-53, 55-61, 63-70 and 72-75 are pending herewith for consideration.

Rejection of Claims 49-75 Under 35 U.S.C. §102(e)

Claims 49 – 75 were rejected under 35 U.S.C. §102(e) as anticipated by U.S. Patent No. 5,710,922 Alley et al. (Alley).

Alley discloses synching a “local” computer to a “remote” computer when the remote computer is docked to the local computer. In particular, as described at Col. 7, line 51 through Col. 10, line 17, in order to synch a remote computer to a local computer, the local computer includes a docking interface allowing the remote computer to be docked thereto. If the local and remote computers are not compatible, then the docking operation is terminated and no synch is possible. (Col. 9, lines 42-46). If the systems are compatible, then the remote computer is synched to the local computer. The synching process is time based. As explained in the reference:

Initially in step 142, the dock sends a message to the remote which indicates the last time that the remote was synchronized by that particular dock. The time of the last synchronization is sent in order to determine which entries need to be updated. As indicated above, when an entry is revised, the revision time is entered as part of the data entry. This permits the synchronization to be time based. That is, only the records that have been added, deleted or revised since the last synchronization need to be revised. By maintaining a time-based backup system, multiple docks can be used to synchronize the information stored on a particular remote, which may be desirable for a variety of reasons. (Col. 10, lines 19-31).

A. Network Connection of the Present Invention
Allows Continuous Remote Synchronization

In general, the system of Alley provides for synchronization in a different manner than the present invention, and addresses a different problem than the present invention. Alley is provided to

allow information previously accessible only from a stationary desk top to be transferred to a portable computer so that individuals may have access to that information outside of their base location. As stated in Alley, “by synchronizing the portable with the desktop, a user can use the portable in the field and the desktop in the base office.” (Col. 4, lines 4-6). However, as explained above, Alley requires a physical docking of all computers in order to synchronize information between the computers. Thus, under the teaching of Alley, every time a change is made to any information on one computer, all other computers of the individual must be brought together, docked, and then synchronized.

By contrast, the present invention assumes that personal information is available on portable devices, but addresses the problem of being able to update and synchronize information, on the fly, between any and all of an individual’s computing devices, from any location. By providing a system of networked devices, where difference information may be quickly and efficiently transmitted and received between all networked devices, all of an individual’s devices may be kept up to date and synchronized, without the cumbersome need to return each device to the home base to dock with the local computer.

This distinction has been added to each of the claims. In particular, the claims have been amended to recite:

- “a network for coupling the first file system and the second file system to allow communication between the first file system and the second file system when the first and second file systems are physically remote from each other” (Claims 49-60);
- “a differencing synchronizer . . . outputting the differencing data to the server via the network, and retrieving the first set of differencing data from the server via the network” (Claims 61-65);
- “transmitting the difference information to a remote second system via a network” (Claims 66-75).

Thus, the present invention as claimed recites a system which allows the transmission and receipt of synchronization information on the fly, at any time, anywhere and to any networked device. Such a system is not disclosed, taught or suggested in the cited reference.

B. Synchronization by Universal Differencing Data

A further distinction between the present invention as recited in certain of the claims and the cited reference is the nature of the synchronization process and the differencing data used for the synchronization process. As explained above, Alley uses a time based system. All data records are time stamped. Upon docking and initiation of the synchronization process, Alley takes all records which have been changed since the last synchronization process, as indicated by the record time stamp, and transfers those changed records between the computers being synchronized.

By contrast, the synchronization process according to the present invention involves converting all application data into a universal format that is not application specific. The universal data for a device is then compared against a stored version of the information for that device to generate universal differencing information. It is this universal differencing information that is used to synchronize other devices. *See*, applicant's disclosure at page 20, line 7 through page 22, line 2:

Figure 9A illustrates a single device engine utilized with a generic application 810 and a generic storage server 850. Figure 9A illustrates a desktop device engine, since all processing occurs on the device and only difference information is transmitted to server 850. Nevertheless, an understanding of the desktop device engine will aid in understanding server side devices engines, hereinafter described. Shown in Figure 9 are the functional components of a device engine in block form and their interrelationship to each other. The device engine 860 is equivalent to the functional block of a differencing sequencer 104 shown in Figures 1-7.

While the invention will be described with respect to the embodiment of the invention as a differencing synchronizer 104, it will be readily understood that portions of the functionality are utilized as needed in a forward-only (a differencing transmitter) or a receive-only (a differencing receiver) capacity as required by the particular application.

As noted above, a device engine exists for each and every device that makes up a user's personal information network of devices in the system. As shown in Figure 9A, each device engine 860 includes an application object 910. The application object is specific to each particular application 810 and provides a standard interface between the device engine and the balance of the data transmission system of the invention, and the application 810. Details of the application object will be described in further detail below. The application object is a pluggable architecture which supports a wide variety of vendor-unique applications. The job of the application object is to map data from the application into a temporary or "universal" data

structure by connecting to the application via any number of standard interfaces to gain access to the application's data. The data structure of the application object puts the data in a generic or "universal data" format which may be used by the device engine components to generate data packages for provision to the storage server.

Also provided is an application object store (AOS) 920 which includes a copy of the device's data at a point just after the previous data extraction and synchronization occurred. Application object store 920 is a mirrored interface which stores a snapshot of the previous state of the data from the application object 910 in the device engine. The size of the AOS will depend on the data being collected by each device engine.

The generic output of the application object is provided to a delta module 950. Delta module 950 is a differencing engine which calculates differences in data between the output of the application object 910 and the copy of the data which is provided in an application object store (AOS) 920. The actual differencing and patch routine can comprise a routine such as XDelta or YDelta. The delta module 950 will be referred to herein alternatively in certain portions of the description as "CStructuredDelta." In addition, the difference information is alternatively referred to herein as a "change log." Each change log (or set of difference information) is a self describing series of sync transactions. As described below, the change log may be encrypted and compressed before output to the network.

Hence, during a sync, the Application Object will, using a mechanism discussed below, extract the data of each application in the device and convert it to a universal data format. The delta module will then generate a difference set by comparing the output of the Application Object and the AOS. This difference information is forwarded to the encryption and compression routines for output to the storage server 850 in the form of a data package. Alternatively, the data from one application can be used to synchronize to data in another application in, for example, a windows environment, as shown by arrow 1050 in Figure 10.

This method of using application specific interfaces to convert application specific data to a universal format and comparing that universal data to a prior version of the information is nowhere disclosed, taught or suggested in Alley. As described above, Ally simply takes all records which have changed since the last sync, as indicated by a time stamp, and transfers those records. There is no conversion to a universal format and there is no comparison against a prior version of the information. In the Office action, the Examiner indicated that Alley performs a comparison of

information as claimed. It is respectfully submitted that this is not correct. Alley only examines time stamps to determine whether a record has changed since the last synchronization.

The above-described features and distinctions of the present invention are recited in the claims at least as follows:

- “The data synchronization system of claim 49 wherein each said data synchronizer comprises: a data source interface; [and] a copy of a previous state of each said data source” (Claim 51);
- “The data synchronization system of claim 51 wherein said difference information is transmitted from said first synchronizer to said second synchronizer in a universal format” (Claim 52);
- “The data synchronization system of claim 51 wherein said data synchronizer includes a plurality of difference source interfaces, each corresponding to a data source format.” (Claim 53);
- “The method of claim 66 wherein said step of determining comprises: comparing data from the first file to a copy of a previous state of data from the first file” (Claim 67);
- “The method of claim 67 wherein said comparing step comprises extracting data from said first file, converting said data to a universal file format, providing said copy of said data in said universal format, and comparing said data and said copy to provide difference data in said universal format” (Claim 68);
- “The method of claim 68 wherein said step of applying comprises: constructing new file data for said second file in said universal data format” (Claim 69);
- “The method of claim 69 wherein said step of updating comprises translating said new file data into a format of said second file.” (Claim 70).

To support a rejection under section 102, the Examiner has the burden of showing that each of the claimed features is found in a single prior art reference that was filed at least as early as the claimed invention. *Rockwell Intern. Corp. v. U.S.*, 147 F.3d 1358, 1363 (Fed. Cir. 1998). Omission of any claimed element, no matter how insubstantial, is grounds for traversing a rejection based on §102. *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542 (Fed. Cir. 1983). As the cited reference has no disclosure of the above discussed features of the claimed invention, including network coupled devices, and does not attempt to address the problem addressed by the present invention, it is respectfully submitted that the present invention is patentable over the cited reference, and it is respectfully requested that the rejection of Claims 49-53, 55-61, 63-70 and 72-75 on Section 102 grounds be withdrawn.

Based on the above, reconsideration of Claims 49-53, 55-61, 63-70 and 72-75 is respectfully requested.

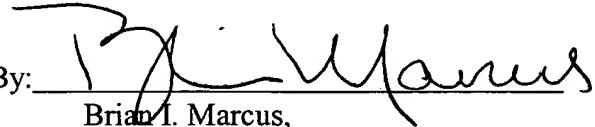
The Examiner's prompt attention to this matter is greatly appreciated. Should further questions remain, the Examiner is invited to contact the undersigned attorney by telephone.

Enclosed is a PETITION FOR EXTENSION OF TIME UNDER 37 C.F.R. § 1.136 for extending the time to respond up to and including today, June 28, 2004.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 501826 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

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